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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/575,336	04/07/2006	Hironori Kobayashi	4700.P0326US	1816
23474 7590 03/17/2010 FLYNN THIEL BOUTELL & TANIS, P.C. 2026 RAMBLING ROAD KALAMAZOO, MI 49008-1631				
EXAMINER				
DOLLINGER, MICHAEL M				
ART UNIT		PAPER NUMBER		
1796				
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03/17/2010		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/575,336

Applicant(s)

KOBAYASHI ET AL.

Examiner

MIKE DOLLINGER

Art Unit

1796

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 October 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,5-9 and 11-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,5-9 and 11-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/S5108)
Paper No(s)/Mail Date 02/19/2010
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Interpretation

1. Examiner interprets the new limitation in claim 1 requiring that the silane coupling agent (C) "is either obtained solely by a reaction of an imidazole compound and 3-glycidoxypolytrimethoxysilane or a reaction of an imidazole compound and 3-methacryloxypolytrimethoxysilane" to require that the silane coupling agent (C) is "the reaction product of a reaction mixture consisting of either (1) an imidazole compound and a 3-glycidoxypolytrimethoxysilane or (2) an imidazole compound and 3-methacryloxypolytrimethoxysilane". If Examiner's interpretation is not Applicants' intent, Applicants may amend the claims. Applicants are encouraged to contact Examiner and propose new claim language to be sure that their intent is commensurate with any amendments.
2. Furthermore, Examiner would like to remind Applicants that the aforementioned claim limitations are product-by-process limitations; the methods by which claimed components are created are not pertinent to patentability, unless applicant can show a different product is produced.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

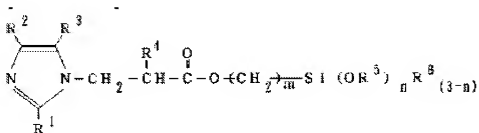
3. Claims 1-3, 5-9 and 11-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
4. The new limitation in claim 1 requiring that the silane coupling agent (C) "is either obtained solely by a reaction of an imidazole compound and 3-glycidoxypolytrimethoxysilane or a reaction of an imidazole compound and 3-methacryloxypolytrimethoxysilane" is confusing because it is unclear whether "solely" applies to both the first and second reaction.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-3, 5-9 and 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takei et al (US 5,391,664) in view of Kumagai (JP 2000-297094 A).
6. Takei et al, discussed above, discloses polyurethane resins according to the claims. Takei et al do not disclose, however, the imidazole compounds of the claims.
7. Kumagai disclose a resin additive for improving mechanical strength of a resin and the adhesion to metal or glass fibers [0001] of the formula (1):

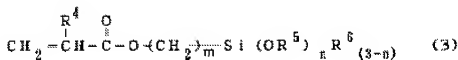


(1) [0008]

obtained by reacting an imidazole of formula (2) with an acrylic silane of formula (3):



(2)



[0011].

Kumagai teaches that the resin additive should be used in an amount of 0.001 to 50 parts by weight per 100 parts by weight of resin [0021]. Kumagai also teaches that the resin additive improves adhesion properties of the resin to metals [0028]. The additive of the inventive examples is a reaction product of methacryloxypropyltrimethoxysilane and imidazole [0022]. From the disclosure of methacryloxypropyltrimethoxysilane one having ordinary skill in the art would at once envisage 1-, 2- and 3-methacryloxypropyltrimethoxysilane.

8. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have combined an imidazole containing silane coupling agent with a polyol and polyisocyanate containing resin composition because Takei et al teach

that it is within the skill of the art to make polyurethane compositions from a polyol and a polyisocyanate and Kumagai teaches that it is within the skill of the art to produce a resin additive obtained from reacting an imidazole with an acrylic silane compound. One would have been motivated to do this because Kumagai teaches that the silane coupling agent improves adhesion to various materials and also improves mechanical strength of the resin. This is combining prior art elements according to known methods to yield predictable results. Absent any evidence to the contrary, there would have been a reasonable expectation of success in achieving improved adhesion and mechanical strength in a polyurethane resin by adding a silane coupling agent reacted with an imidazole compound.

Response to Arguments

9. Applicant's arguments, see pages 6-7 bridging paragraph, filed 10/30/2009, with respect to Kumagai et al (US 6,710,181 B2) have been fully considered and are persuasive. The rejection of 07/30/2009 has been withdrawn.

10. Applicant's remaining arguments filed 10/30/2009 have been fully considered but they are not persuasive.

11. Applicants argue that while Kumagai '094 discloses the addition of the imidazole silane compound to polyurethane resin, this does not constitute a disclosure of the addition of the imidazole silane compound to a polyisocyanate and a polyol. This argument is not convincing; the currently presented claim language merely requires a

composition that comprises a polyol, a polyisocyanate and a silane coupling agent with an imidazole group. A polyurethane product comprises a polyol and a polyisocyanate intrinsically. The claims are not limited to a reaction mixture of a separate polyol, polyisocyanate and a silane coupling agent containing an imidazole but merely to a resin composition comprising these components.

12. Applicants also argue that the disclosure of addition of a resin additive is the disclosure of adding the additive to a fully formed resin and not adding the additive to the reaction mixture before the product resin is formed. Applicants argue that there is no suggestion in any of the references that a reaction would even occur between a polyol and a polyisocyanate. Applicants also ask for evidence that the same results are obtained. This argument is not convincing. Firstly, the argument in the above paragraph makes Applicants point irrelevant. For the sake of argument, however, one of ordinary skill in the art would have every reason and motivation to add the imidazole silane to a polyol and polyisocyanate reaction mixture. Imidazoles are known catalysts for urethane forming reactions, for example see Rasshofer (US 2003/0104241 A1) paragraph [0048] where 1,2-dimethylimidazole and 2-methylimidazole are cited as known tertiary amine polyurethane catalysts. One of ordinary skill in the art at the time the invention was made would have reason to expect the reaction of a polyol and a polyisocyanate to occur and would have reason to expect the reaction to be catalyzed. Additionally, Sato et al (JP 10-280275 A), submitted on the IDS of 10 December 2008, discloses the reaction products of imidazole compounds reacted silane compound [0006] including gamma-glycidyl propyltrimethoxysilane [0012]. Sato et al teach that

these compounds may be simultaneously used as catalysts and coupling agents [0030].

The evidence provided by Rasshofer and Sato does not effect the grounds of rejection but merely provides evidence in response to Applicant's arguments.

13. Applicants ask for case law that establishes that it is obvious to add a component to reactants that make up a resin product of the reactants. Firstly, as discussed above, Examiner does not feel that Applicants claims require the addition of the imidazole silane to a polyol and a polyisocyanate reaction mixture (rather than a formed polyurethane containing these components) or that Kumagai '094 only discloses addition of the imidazole silane to a fully formed polyurethane. For the sake of argument, however, Examiner cites *In re Burhans*, 154 F.2d 690, 69 USPQ 330 (CCPA 1946) (selection of any order of performing process steps is prima facie obvious in the absence of new or unexpected results); *In re Gibson*, 39 F.2d 975, 5 USPQ 230 (CCPA 1930) (Selection of any order of mixing ingredients is prima facie obvious.). Please see MPEP § 2144.04 [R-6] Legal Precedent as Source of Supporting Rationale IV.

CHANGES IN SIZE, SHAPE, OR SEQUENCE OF ADDING INGREDIENTS.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MIKE DOLLINGER whose telephone number is (571)270-5464. The examiner can normally be reached on M-F 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on 571-272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/mmd/

/RANDY GULAKOWSKI/

Supervisory Patent Examiner, Art Unit 1796